SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Schedule 13D

INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT TO RULES 13d-1 (a) AND AMENDMENTS THERETO FILED PURSUANT TO 13d-2 (a)

(AMENDMENT NO. 2)*

AcelRx Pharmaceuticals, Inc.

(Name of Issuer)

Common Stock (Title of Class of Securities)

> 00444T100 (CUSIP Number)

Mark Wan c/o Three Arch Partners 3200 Alpine Road Portola Valley, California 94028 (650) 529-8000

(Name, Address and Telephone Number of Person Authorized to Receive Notices and Communications)

COPY TO:

Sean Caplice, Esq. c/o Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP 1200 Seaport Boulevard, Redwood City, California 94063 (650) 321-2400

December 7, 2012

(Date of Event Which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box \Box .

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities and for any subsequent amendment containing information which would alter disclosures provided in the cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

(Continued on following pages)

1	NAME OF REPORTING PERSONS Three Arch Partners IV, L.P. (the "TAP IV")					
2	CHECK THE APP	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠				
3	SEC USE ONLY					
4	SOURCE OF FUNDS WC					
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e)					
6	CITIZENSHIP OF Delaware	R PLAC	CE OF ORGANIZATION			
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH		7	SOLE VOTING POWER 6,511,554 shares (including 188,020 shares represented by warrants exercisable on November 29, 2012), except that Three Arch Management IV, L.L.C. (the "TAM IV") is the general partner of TAP IV and may be deemed to have sole power to vote these shares, and Mark Wan ("Wan") and Wilfred Jaeger ("Jaeger") are the managing members of TAM IV and may be deemed to have shared power to vote these shares.			
P	REPORTING PERSON		SHARED VOTING POWER See response to row 7.			
WITH		9	SOLE DISPOSITIVE POWER 6,511,554 shares (including 188,020 shares represented by warrants exercisable on November 29, 2012), except that TAM IV is the general partner of TAP IV and may be deemed to have sole power to dispose of these shares, and Wan and Jaeger are the managing members of TAM IV and may be deemed to have shared power to dispose of these shares.			
		10	SHARED DISPOSITIVE POWER See response to row 9.			
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 6,511,554					
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)					
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 17.5%					
14	TYPE OF REPORTING PERSON (See Instructions)					

1		NAME OF REPORTING PERSONS Three Arch Associates IV, L.P. (<u>"TAA IV"</u> ")					
2	CHECK TH	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠					
3	SEC USE C	NLY					
4	SOURCE O WC	SOURCE OF FUNDS					
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e)						
6	CITIZENSH Delaware	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware					
NUMBI SHAI BENEFIO	RES	7	SOLE VOTING POWER 143,772 shares (including 4,151 shares represented by warrants exercisable on November 29, 2012), except that TAM IV is the general partner of TAA IV and may be deemed to have sole power to vote these shares, and Wan and Jaeger are the managing members of TAM IV and may be deemed to have shared power to vote these shares.				
OWNED I REPOR PERS	BY EACH RTING	8	SHARED VOTING POWER See response to row 7.				
Wľ		9	SOLE DISPOSITIVE POWER 143,772 shares (including 4,151 shares represented by warrants exercisable on November 29, 2012), except that TAM IV is the general partner of TAA IV and may be deemed to have sole power to dispose of these shares, and Wan and Jaeger are the managing members of TAM IV and may be deemed to have shared power to dispose of these shares.				
		10	SHARED DISPOSITIVE POWER See response to row 9.				
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 143,772						
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)						
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 0.4%						
14	TYPE OF REPORTING PERSON (See Instructions) PN						

1	NAME OF REPORTING PERSONS Three Arch Management IV, L.L.C. ("TAM IV")					
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠					
3	SEC USE C	ONLY				
4	SOURCE C WC	F FUNI	OS .			
5	CHECK BO	X IF DI	SCLOSURE OF LEGAL PROCEEDINGS IS REQUI	RED		
	PURSUAN	т то іт	TEMS 2(d) OR 2(e)			
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware					
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING		7	IV and 4,151 shares represented by warrants exerc are directly owned by TAP IV and 143,772 are directly	ented by warrants exercisable on November 29, 2012 by TAP isable on November 29, 2012 by TAA IV), of which 6,511,554 tily owned by TAA IV. TAM IV is the general partner of each of the power to vote these shares. Wan and Jaeger are the managing ared power to vote these shares.		
PERS WI	SON	8	SHARED VOTING POWER See response to row 7.			
		9	IV and 4,151 shares represented by warrants exerc are directly owned by TAP IV and 143,772 are direct	ented by warrants exercisable on November 29, 2012 by TAP isable on November 29, 2012 by TAA IV), of which 6,511,554 tly owned by TAA IV. TAM IV is the general partner of each of the power to dispose of these shares. Wan and Jaeger are the to have shared power to dispose of these shares.		
		10	SHARED DISPOSITIVE POWER See response to row 9.			
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 6,655,326					
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)					
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 17.9%					
14	TYPE OF REPORTING PERSON (See Instructions)					

1		NAME OF REPORTING PERSONS Three Arch Partners III, L.P. (the "TAP III")					
2		CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠					
3	SEC USE ONL	Y					
4	SOURCE OF FU WC	SOURCE OF FUNDS					
5 CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e)							
6	CITIZENSHIP C Delaware	OR PLA	CE OF ORGANIZATION				
BE	NUMBER OF SHARES BENEFICIALLY OWNED BY EACH		SOLE VOTING POWER 3,765,501 shares (including 60,789 shares represented by warrants exercisable on November 29, 2012), except that Three Arch Management III, L.L.C. (the " <u>TAM III</u> ") is the general partner of TAP III and may be deemed to have sole power to vote these shares, and Wan and Jaeger are the managing members of TAM III and may be deemed to have shared power to vote these shares.				
R	EPORTING PERSON	8	SHARED VOTING POWER See response to row 7.				
	WITH		SOLE DISPOSITIVE POWER 3,765,501 shares (including 60,789 shares represented by warrants exercisable on November 29, 2012), except that TAM III is the general partner of TAP III and may be deemed to have sole power to dispose of these shares, and Wan and Jaeger are the managing members of TAM III and may be deemed to have shared power to dispose of these shares.				
			SHARED DISPOSITIVE POWER See response to row 9.				
11	AGGREGATE A		NT BENEFICIALLY OWNED BY EACH 3,765,501				
12		CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)					
13	PERCENT OF C	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 10.1%					
14	TYPE OF REPORTING PERSON (See Instructions) PN						

1	NAME OF REPORTING PERSONS Three Arch Associates III, L.P. ("TAA III")						
2		CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠					
3	SEC USE C	ONLY					
4	SOURCE C WC	F FUND	S S				
5	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) OR 2(e)						
6	CITIZENSHIP OR PLACE OF ORGANIZATION Delaware						
SHA	NUMBER OF SHARES BENEFICIALLY		SOLE VOTING POWER 202,442 shares (including 3,268 shares represented by warrants exercisable on November 29, 2012), except that TAM III is the general partner of TAA III and may be deemed to have sole power to vote these shares, and Wan and Jaeger are the managing members of TAM III and may be deemed to have shared power to vote these shares.				
REPO	BY EACH RTING	8	SHARED VOTING POWER See response to row 7.				
	PERSON WITH		SOLE DISPOSITIVE POWER 202,442 shares (including 3,268 shares represented by warrants exercisable on November 29, 2012), except that TAM III is the general partner of TAA III and may be deemed to have sole power to dispose of these shares, and Wan and Jaeger are the managing members of TAM III and may be deemed to have shared power to dispose of these shares.				
		10	SHARED DISPOSITIVE POWER See response to row 9.				
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 202,442						
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)						
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 0.5%						
14	TYPE OF REPORTING PERSON (See Instructions) PN						

1	NAME OF REPORTING PERSONS Three Arch Management III, L.L.C. ("TAM III")					
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠					
3	SEC USE C	NLY				
4	SOURCE C WC	F FUNI	DS .			
5	CHECK BC	X IF DI	SCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED			
	PURSUAN	Т ТО ІТ	TEMS 2(d) OR 2(e)			
6	CITIZENSI Delaware	IIP OR F	PLACE OF ORGANIZATION			
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING		7	SOLE VOTING POWER 3,967,943 shares (including 60,789 shares represented by warrants exercisable on November 29, 2012 by TAP III and 3,268 shares represented by warrants exercisable on November 29, 2012 by TAA III), of which 3,765,501 are directly owned by TAP III and 202,442 are directly owned by TAA III. TAM III is the general partner of each of TAP III and TAA III and may be deemed to have sole power to vote these shares. Wan and Jaeger are the managing members of TAM III and may be deemed to have shared power to vote these shares.			
	RSON VITH	8	SHARED VOTING POWER See response to row 7.			
		9	SOLE DISPOSITIVE POWER 3,967,943 shares (including 60,789 shares represented by warrants exercisable on November 29, 2012 by TAP III and 3,268 shares represented by warrants exercisable on November 29, 2012 by TAA III), of which 3,765,501 are directly owned by TAP III and 202,442 are directly owned by TAA III. TAM III is the general partner of each of TAP III and TAA III and may be deemed to have sole power to dispose of these shares. Wan and Jaeger are the managing members of TAM III and may be deemed to have shared power to dispose of these shares.			
		10	SHARED DISPOSITIVE POWER See response to row 9.			
11	11 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,967,943					
12	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)					
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)					
14	TYPE OF REPORTING PERSON (See Instructions) OO					

1	NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO. OF ABOVE PERSON (Entities Only). Mark Wan ("Wan")					
2	CHECK TH	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠				
3	SEC USE C	NLY				
4	SOURCE O WC	F FUN	IDS			
5			DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED ITEMS 2(d) OR 2(e)			
6	CITIZENSH United State		PLACE OF ORGANIZATION			
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH		7	SOLE VOTING POWER 12,500 shares (all of which are represented by an option exercisable in full immediately).			
		8	SHARED VOTING POWER 10,623,269 shares (including 188,020 shares represented by warrants exercisable on November 29, 2012 by TAP IV; 4,151 shares represented by warrants exercisable on November 29, 2012 by TAA IV; 60,789 shares represented by warrants exercisable on November 29, 2012 by TAP III; and 3,268 shares represented by warrants exercisable on November 29, 2012 by TAA III), of which 6,511,554 are directly owned by TAP IV, 143,772 are directly owned by TAA IV, 3,765,501 are directly owned by TAP III and 202,442 are directly owned by TAA III. TAM IV, the general partner of each of TAP IV and TAA IV, may be deemed to have the sole power to vote the shares held by TAP IVI and TAA III. Wan is a managing member of TAM IV and TAM III, and may be deemed to have shared power to vote the shares held by TAP IV, TAA IV, TAP III and TAA III.			
		9	SOLE DISPOSITIVE POWER 12,500 shares (all of which are represented by an option exercisable in full immediately).			
		10	SHARED DISPOSITIVE POWER 10,623,269 shares (including 188,020 shares represented by warrants exercisable on November 29, 2012 by TAP IV; 4,151 shares represented by warrants exercisable on November 29, 2012 by TAA IV; 60,789 shares represented by warrants exercisable on November 29, 2012 by TAP III; and 3,268 shares represented by warrants exercisable on November 29, 2012 by TAA III), of which 6,511,554 are directly owned by TAP IV, 143,772 are directly owned by TAA IV, 3,765,501 are directly owned by TAP III and 202,442 are directly owned by TAA III. TAM IV, the general partner of each of TAP IV and TAA IV, may be deemed to have the sole power to dispose of the shares held by TAP IV and TAA IV. TAM III, the general partner of each of TAP III and TAA III, may be deemed to have the sole power to dispose of the shares held by TAP III and TAA III. Wan is a managing member of TAM IV and TAM III, and may be deemed to have shared power to dispose of the shares held by TAP IV, TAA IV, TAP III and TAA III.			
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 10,635,769					
12	12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)					
13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 28.5%			ASS REPRESENTED BY AMOUNT IN ROW (9) 28.5%			
14	TYPE OF REPORTING PERSON (See Instructions) IN					

1	NAME OF REPORTING PERSONS I.R.S. IDENTIFICATION NO. OF ABOVE PERSON (Entities Only). Wilfred Jaeger ("Jaeger")						
2	СНЕСК ТН	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP (See Instructions) (a) □ (b) ⊠					
3	SEC USE C	NLY					
4	SOURCE O WC	F FUI	IDS				
5			DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED ITEMS 2(d) OR 2(e)				
6	CITIZENSH United State		PLACE OF ORGANIZATION				
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH		7	SOLE VOTING POWER 0 shares.				
		8	SHARED VOTING POWER 10,623,269 shares (including 188,020 shares represented by warrants exercisable on November 29, 2012 by TAP IV; 4,151 shares represented by warrants exercisable on November 29, 2012 by TAA IV; 60,789 shares represented by warrants exercisable on November 29, 2012 by TAP III; and 3,268 shares represented by warrants exercisable on November 29, 2012 by TAA III), of which 6,511,554 are directly owned by TAP IV, 143,772 are directly owned by TAA IV, 3,765,501 are directly owned by TAP III and 202,442 are directly owned by TAA III. TAM IV, the general partner of each of TAP IV and TAA IV, may be deemed to have the sole power to vote the shares held by TAP IV and TAA IV. TAM III, the general partner of each of TAP III and TAA III. Jaeger is a managing member of TAM IV and TAM III, and may be deemed to have shared power to vote the shares held by TAP IV, TAA IV, TAP III and TAA III.				
		9	SOLE DISPOSITIVE POWER 0 shares.				
		10	SHARED DISPOSITIVE POWER 10,623,269 shares (including 188,020 shares represented by warrants exercisable on November 29, 2012 by TAP IV; 4,151 shares represented by warrants exercisable on November 29, 2012 by TAA IV; 60,789 shares represented by warrants exercisable on November 29, 2012 by TAP III; and 3,268 shares represented by warrants exercisable on November 29, 2012 by TAA III), of which 6,511,554 are directly owned by TAP IV, 143,772 are directly owned by TAA IV, 3,765,501 are directly owned by TAP III and 202,442 are directly owned by TAA III. TAM IV, the general partner of each of TAP IV and TAA IV, may be deemed to have the sole power to dispose of the shares held by TAP III and TAA III. Jaeger is a managing member of TAM IV and TAM III, and may be deemed to have shared power to dispose of the shares held by TAP III and TAA III.				
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 10,623,269						
12 CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES (See Instructions)							
13 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9) 28.5%			ASS REPRESENTED BY AMOUNT IN ROW (9) 28.5%				
14	TYPE OF REPORTING PERSON (See Instructions) IN						

Statement on Schedule 13D

This Amendment No. 2 to Schedule 13D is filed to report the aggregate purchases of 2,416,918 shares of Common Stock of AcelRx Pharmaceuticals, Inc., a Delaware corporation, by the Reporting Persons on December 7, 2012 and the issuance of an option representing 12,500 shares of Common Stock of AcelRx Pharmaceuticals, Inc., a Delaware corporation, to Wan on July 26, 2012. This Amendment No. 2 supplements and amends the Schedule 13D originally filed with the Securities and Exchange Commission on February 25, 2011, as amended May 29, 2012 (as amended, the "Schedule 13D"). Only those items that are hereby reported are amended; all other items remain unchanged.

ITEM 3. SOURCE AND AMOUNT OF FUNDS OR OTHER CONSIDERATION.

Item 3 of the Schedule 13D is hereby amended by adding the following to the end thereof:

On December 7, 2012, each of TAP IV and TAA IV purchased as part of the Issuer's public offering on December 7, 2012 an aggregate of 2,416,918 shares of Common Stock for a purchase price of \$3.31 per share, or \$7,999,998.58 in the aggregate.

On July 26 2012, Wan was granted a Stock Option from the Issuer to purchase 12,500 shares of Common Stock at an exercise price of \$3.11. The shares subject to the option will vest monthly over two years, with the first shares vested and exercisable on August 24, 2012.

The source of the funds for the acquisition of the Common Stock purchased from the Issuer by TAP IV and TAA IV was from working capital. No part of the purchase price was borrowed by TAP IV or TAA IV for the purpose of acquiring such securities.

ITEM 5. INTEREST IN SECURITIES OF THE ISSUER.

Items 5(a) and 5(b) of the Schedule 13D are hereby amended and restated in their entirety as follows:

(a,b) Regarding aggregate beneficial ownership, see Row 11 of the cover page of each Reporting Person. Regarding percentage beneficial ownership, see Row 13 of the cover page of each Reporting Person. Regarding sole power to vote shares, see Row 7 of the cover page of each Reporting Person. Regarding shared power to vote shares, see Row 8 of the cover page of each Reporting Person. Regarding sole power to dispose of shares, see Row 9 of the cover page of each Reporting Person. Regarding shared power to dispose of shares, see Row 10 of the cover page of each Reporting Person. The percentages of ownership listed in Row 13 for each Reporting Person was calculated based upon 37,055,027 shares of Common Stock outstanding as of December 14, 2012.

/s/ Steve Agelopoulos

SIGNATURES

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: December 17, 2012

Three Arch Partners IV, L.P.

By Three Arch Management IV, L.L.C. Steve Agelopoulos, by Power of Attorney

Its General Partner

Three Arch Associates IV, L.P. /s/ Steve Agelopoulos

By Three Arch Management IV, L.L.C. Steve Agelopoulos, by Power of Attorney

Its General Partner

Three Arch Partners III, L.P. /s/ Steve Agelopoulos

By Three Arch Management III, L.L.C. Steve Agelopoulos, by Power of Attorney

Its General Partner

Three Arch Associates III, L.P. /s/ Steve Agelopoulos

By Three Arch Management III, L.L.C. Steve Agelopoulos, by Power of Attorney

Its General Partner

Three Arch Management IV, L.L.C. /s/ Steve Agelopoulos

Steve Agelopoulos, by Power of Attorney

Three Arch Management III, L.L.C. /s/ Steve Agelopoulos

Steve Agelopoulos, by Power of Attorney

Mark Wan /s/ Steve Agelopoulos

Steve Agelopoulos, by Power of Attorney

Wilfred Jaeger /s/ Steve Agelopoulos

Steve Agelopoulos, by Power of Attorney